REMARKS / ARGUMENTS

Election

The Examiner required election from among the following species of the present invention:

I. Claims 2, 3, 12 and 13 (reaction chamber);

II. Claims 4 and 14 (inlet flow path);

III. Claims 5 and 15 (heat shield); and

IV. Claims 7-11 (analysis system).

The Examiner has stated, and Applicants agree, that Claims 1 and 6 are generic to each of the above-listed species.

Applicants hereby confirm their election of Group I (Claims 1-3, 6, 12 and 13) to proceed with further prosecution. It is understood that Claims 4, 5, 7-11, 14 and 15 are withdrawn from further consideration. Applicants further understand that, in the event a generic claim is allowed, additional claims which depend therefrom or which are otherwise written in independent form to include all the limitations of the allowed generic claim will be entitled to examination in the present application. In addition, Applicants hereby reserve their right to file one or more divisional applications which include one or more claims which are not elected and/or ultimately not allowed in the present application.

Claim Amendments

Initially, it is noted that independent Claims 1 and 6 have been amended hereinabove to highlight and clarify the novel features of the present invention. More particularly, independent amended Claim 1 now recites that the lab-scale reactor unit of the present invention is for conducting high temperature catalytic reactions to produce hydrogen cyanide and is sized and shaped for use within a laboratory setting. Similarly, amended independent Claim 6 now recites that the lab-scale reactor system of the

present invention is for conducting high temperature catalytic reactions to produce hydrogen cyanide and is sized and shaped for use within a laboratory setting. Additionally, Claim 6 has also been amended to recited that the lab-scale reactor system further comprises, among other features, a quench cooler sized and shaped to rapidly cool an effluent stream comprising at least hydrogen cyanide, and a flare. These amendments are believed to be supported by the as-filed specification, which was published as US Patent Application Publication No. 2002/0071798. In particular, support for the aforesaid claim amendments is found in US 200/0071798, at the end of paragraph [0002], the beginning of paragraph [0048] and in paragraphs [0053], [0054] and [0055].

Rejection of Claims 1-3 under 35 U.S.C. § 102(b)

On pages 3-4 of the Office Action, Claims 1-3 have been rejected, under 35 U.S.C. § 102(b), as being anticipated by Kobylinski (US 5,112,527). Applicants respectfully traverse the foregoing claim rejections for the following reasons.

In one embodiment, the present invention relates generally to a lab-scale reactor unit. More particularly, as recited in amended independent Claim 1, the lab-scale reactor unit of the present invention reactor unit is for conducting high temperature catalytic reactions to produce hydrogen cyanide and is sized and shaped for use within a laboratory setting. Moreover, the lab-scale reactor unit of Claim 1 comprises: (a) a body of thermal insulating material, (b) a reaction chamber formed within said body of thermal insulating material, (c) a pressure containment vessel disposed about said body of thermal insulating material, said pressure containment vessel having an inlet communicating with said reaction chamber, said pressure containment vessel having an outlet communicating with said reaction chamber, and (d) a quench cooler operatively connected to said outlet of said pressure containment vessel.

Contrary to the Examiner' s determination, Kobylinski does not anticipate the present invention as recited in amended independent Claim 1 because it does not disclose a pressure containment vessel as that feature is described at paragraphs [0058] and [0059] of the present specification, US 2002/0071798. As discussed in the

present specification (see paragraph [0008] of US 2002/0071798), one problem with conventional lab-scale reactor units for producing hydrogen cyanide, which is addressed by the present invention, is that conventional units are not designed to contain flashbacks or detonations. Inclusion of a pressure containment vessel on the lab-scale reactor unit of the present invention, as recited in amended independent Claim 1, is precisely for the purpose of addressing the aforesaid shortcoming of the prior art and equips the lab-scale reactor unit to contain flashbacks or detonations. Generally, persons of ordinary skill in the relevant art would not expect that a lab-scale reactor unit would include a pressure containment vessel.

The Examiner states in the Office Action (bottom of page 3) that Figure 1, item 10, of Kobylinski designates a pressure containment vessel. However, reference number 10, in fact, designates the entire laboratory scale apparatus shown in Figure 1 and identified (see, Col. 8, lines 10-13) as an example of an apparatus that is suitable for carrying out the inventive process disclosed in Kobylinski. Furthermore, while the apparatus shown in Figure 1 of Kobylinski does have thermal insulating material (designated by reference number 34), it does not include a "pressure containment vessel" disposed about the thermal insulating material, as in the present invention recited in amended independent Claim 1. Rather the feature that appears to surround the thermal insulating material (34) in Figure 1 of Konbylinski is not described or labeled in the disclosure of Kobylinski and cannot be construed as being capable of containing flashbacks or detonations, but rather, it is obviously merely holding the insulating material in place about the tube reactor (12). In the foregoing circumstances, it is respectfully submitted that there is no mention, description or suggestion that there is any pressure containment vessel on the apparatus shown in Figure 1 of Koblyinski, as that term is described at paragraphs [0058] and [0059] of US 2002/0071798.

In addition to the foregoing distinction, it is noted that the apparatus disclosed in Kobylinski is for converting natural gas to synthesis gas, an endothermic reaction requiring addition of heat (see heating coil 26 in Figure 1). The lab-scale reactor unit of the present invention, on the other hand, is for conducting high temperature catalytic reactions to produce hydrogen cyanide, which are highly exothermic reactions. Thus,

the apparatus disclosed in Kobylinski is not the same as the lab-scale reactor unit of the present invention recited in amended Claim 1 and the design requirements for each are different.

It is believed that, in view of the foregoing claim amendments the above comments, the present invention as recited in amended independent Claim 1 is not anticipated by Kobylinski. It is further believed that independent Claim 1, as well as Claims 2 and 3 which depend therefrom, are allowable over Kobylinski.

Rejection of Claims 6 and 12-13 under 35 U.S.C. § 103(a)

On pages 4-6 of the Office Action, Claims 6, 12 and 13 have been rejected, under 35 U.S.C. § 103(a), as being obvious in view of Kobylinski in combination with Kanne et al. (US 4,804,725). Applicants respectfully traverse the foregoing claim rejections for the following reasons.

In another embodiment, the present invention relates generally to a lab-scale reactor system. More particularly, as recited in amended independent Claim 6, the lab-scale reactor unit of the present invention reactor unit is for conducting high temperature catalytic reactions to produce hydrogen cyanide and is sized and shaped for use within a laboratory setting. Moreover, the lab-scale reactor system of Claim 6 comprises: (a) a body of thermal insulating material, (b) a reaction chamber formed within said body of thermal insulating material, and (c) a pressure containment vessel disposed about said body of thermal insulating material, said pressure containment vessel having an inlet communicating with said reaction chamber, said pressure containment vessel having an outlet communicating with said reaction chamber. The lab-scale reactor system also comprises (d) a quench cooler having an inlet and an outlet, said inlet of said quench cooler connected to said outlet of said pressure containment vessel and said quench cooler being sized and shaped to rapidly cool an effluent stream comprising at least hydrogen cyanide. As recited in amended independent Claim 6, the lab-scale reactor system further comprises, along with additional recited features, (j) a flare having an inlet in fluid communication with at least one of said outlet lines for destruction of product gases.

It is respectfully submitted that the present invention, as recited in amended independent Claim 6, is not obvious in view of the combination of the disclosures of Kobylinski and Kanne et al. Kobylinski, as discussed hereinabove, discloses an apparatus suitable for conducting conversion of natural gas to synthesis gas, but not for conducting high temperature catalytic reactions for producing hydrogen cyanide. Furthermore, contrary to the Examiner's analysis, the apparatus disclosed in Kobylinski lacks a pressure containment vessel, which is an essential feature of the lab-scale reactor system of the present invention recited in amended independent Claim 6. In addition, Kobylinski entirely fails to disclose or suggest that the quench cooler of the apparatus shown in Figure 1 thereof is sized and shaped to rapidly cool an effluent stream, nor that the apparatus includes a flare, both of which are features of the lab-scale reactor system of the present invention, as recited in amended independent Claim 6.

It is respectfully submitted that Kanne et al., cited by the Examiner, does not in any way address or rectify the aforesaid deficiencies of Kobylinksi. While there is some discussion (see Kanne et al., Cols. 4-6) of the reactor used in connection with the system described in Kanne et al., that discussion does not provide any description of the overall construction of the reactor, but rather focuses on the existence of multiple internal sections in the reactor and how to safely achieve "let-down" for each section by the use of valves.

More particularly, the system in Kanne et al. is specifically adapted for continuous high pressure polymerization reactions, rather than for conducting high temperature catalytic reactions to produce hydrogen cyanide as in the present invention recited in amended independent Claim 6. Similarly, the system of Kanne et al. is not sized and shaped for use within a laboratory setting, as is the lab-scale reactor system of the present invention of Claim 6. Furthermore, there is no discussion or suggestion in Kanne et al. that the reactor includes a pressure containment vessel for containing flashbacks or detonations, nor a quench cooler sized and shaped to rapidly cool an effluent stream. Lastly, there is no description or suggestion in Kanne et al. concerning the use of a flare in connection with the reaction system disclosed therein. Thus, none

of the above-cited deficiencies of Kobylinski are addressed or resolved by the disclosure of Kanne et al. and combination of these two references, therefore, does not render obvious the present invention, as recited in amended independent Claim 6.

In the foregoing circumstances, and in view of the foregoing claim amendments, the present invention as recited in amended independent Claim 6 is believed to be patentable over the combination of Kobylinski and Kanne et al.. It is further believed that independent Claim 7, as well as Claims 12 and 13 which depend therefrom, are allowable over Kobylinski in view of Kanne et al.

Conclusion

In view of the foregoing amendments and remarks, re-examination and allowance of Claims 1-3, 6 and 12-13 are respectfully requested. All of Claims 1-3, 6 and 12-13 are believed to be allowable over the references cited by the Examiner in the first Office Action.

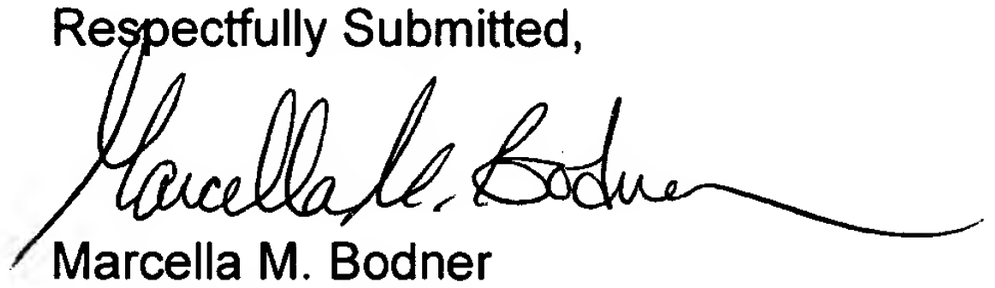
Furthermore, in the event that amended independent Claim 1 is found allowable, since amended independent Claim 1 remains generic with respect to each of Claims 4 and 5, re-examination and allowance of Claims 4 and 5 is also hereby requested. Similarly, in the event that amended independent Claim 6 is found allowable, since amended independent Claim 6 remains generic with respect to each of Claims 7-11 and 14-15, re-examination and allowance of Claims 7-11 and 14-15 is also hereby requested .

If there remain any outstanding issues which the Examiner believes could be resolved by telephone, the Examiner is cordially invited to telephone the undersigned attorney to discuss same at the telephone number provided below.

A $420 fees is believed to be due in connection with the submission of this Amendment within one month after the original three-month due date set by the first Office Action. A Petition For Extension Of Time for a two (2)-month extension accompanies this Amendment and provides for payment of the aforesaid $420 extension fee.

No additional fees are believed to be due. If, however, any such additional fees, including petition and extension fees, are due, the Commissioner is hereby authorized to charge such fees, as well as to credit any overpayments, to **Deposit Account No. 18-1850**. In the meantime, please direct all future correspondence relating to the present application to the undersigned attorney.

Respectfully Submitted,



Date: **August 13, 2004**

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